

Descriptions of two new *Brinckochrysa* species from South Africa, with taxonomic notes on other African species of the genus (Neuropteroidea: Planipennia: Chrysopidae)

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Two new species of Chrysopidae, *Brinckochrysa tjederi* and *B. pulchella*, are described from the Transvaal, South Africa. The new taxa are compared with other African species of the genus; three new synonyms are established.

INTRODUCTION

In his comprehensive account of the Chrysopidae of southern Africa, Tjeder (1966) described *Brinckochrysa* as a subgenus of *Chrysopa* Leach. In this, he included the South African species *Chrysopa stenoptera* Navás and *C. michaelsoni* Esben-Petersen and described a new species, *C. peri*. In the intervening years more *Brinckochrysa* species have been found in Asia, Australia and southern Europe. Two more African species, *Chrysopa alferii* Navás from Egypt and *C. plagata* Navás from the Cape Verde Islands, were also referred to *Brinckochrysa* which is now considered to have full generic status (Hölzel 1980; Ohm & Hölzel 1982).

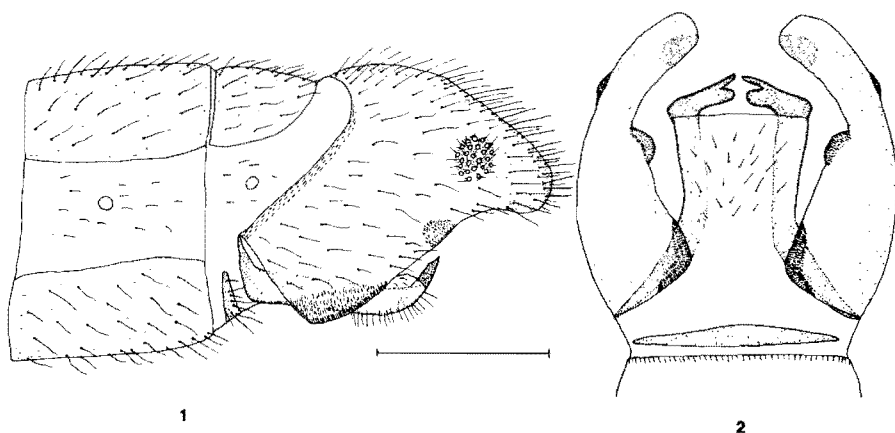
During a visit to South Africa in 1985, two new species were discovered in the Transvaal. In the following account these species are described and the synonymy of some other African species is discussed.

Brinckochrysa tjederi sp. nov., Figs 1–7

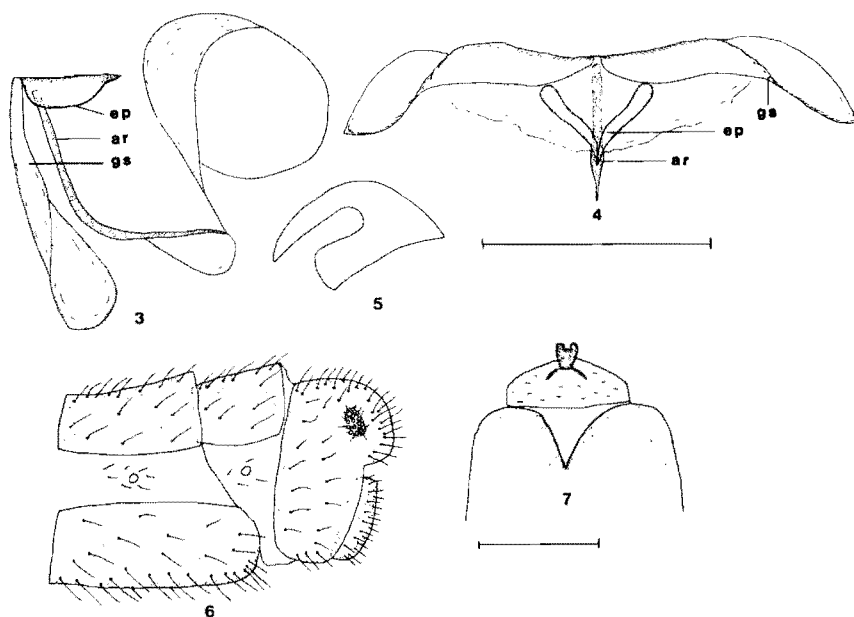
Size: length of forewings, male 12 mm, female 11–13 mm; length of hindwings, male 11 mm, female 10–12 mm.

Head yellow with red spots below antennae and on clypeus; raised portion of vertex green with red anterior margin; red spots also on upper parts of toruli and red lines along inner eye margin. Palpi brownish. Antennae distinctly longer than wings; scape longer than wide, yellow with a red stripe on outer surface; pedicel short, with indistinct red ring; flagellum yellow, apical parts brownish, setae yellowish-brown.

Thorax green with indistinct yellow dorsal longitudinal stripe and white hairs. Wings: membrane hyaline without spots or shadings; pterostigma indistinct; venation entirely green. Forewings: apex of intramedian cell beyond the first radio-medial crossvein; 4–6 gradates in inner row, 6–10 in outer row; hindwings; 1–4 gradates in in-



Figs 1-2 *Brinckochrysa tjederi* sp. nov. (holotype ♂). Apex of abdomen, 1. Lateral. 2. Ventral.



Figs 3-7 *Brinckochrysa tjederi*. 3. Gonarcus with arcessus and entoprocessus (holotype ♂), lateral. 4. Same, caudal. 5. Tarsal claw. 6. Apex of abdomen (paratype ♀, Messina Nat. Res.). 7. Same, ventral, subgenital. Abbreviations: ar - Arcessus. gs - Gonarcus. ep - Entoprocessus. Scale = 0.5 mm.

ner row, 4–6 in outer row. Legs green with pale-brown hairs; tarsal claws (Fig. 5) strongly curved with basal tooth.

Abdomen green, sternites yellowish with pale hairs; apex as in Figs 1 & 2 (male) and 6 (female). Genital structures as in Figs 3 & 4; female subgenitale as in Fig. 7.

Brinckochrysa tjederi sp. nov. and *B. plagata* (Navás) are very similar in general appearance and are undoubtedly closely related. They may be distinguished by several features: *B. plagata* is usually smaller, with large red spots on the vertex and on the meso- and metanotum. In most of the specimens examined, the venation of the forewings is infuscated. Some costal crossveins, the base of radial sector, some basal radial crossveins, the anal veins and a few of the gradates are dark. The male ectoprocts of the two species differ in shape as shown in Figs 1 and 8; for genital structures see Figs 3 & 4 and 10 & 11.

I have much pleasure in dedicating this species to Bo Tjeder, Lund, on the occasion of his eighty-fifth birthday, in recognition of his invaluable contribution to our knowledge of southern African Chrysopidae.

MATERIAL EXAMINED. SOUTH AFRICA: Transvaal; holotype ♂, Kruger National Park, Skukuza, 24.59 S 31.36 E, 500 m, 25.ii.1985 (National Collection of Insects, Pretoria); 2 ♀ paratypes, Messina Nature Reserve, 22.23 S 30.02 E, 700 m 11–12.ii.1985; 1 ♀ paratype, Soutpan, Pretoria Dist, 25.24 S 28.05 E, 1500 m, 22.ii.1985 (Coll. Aspöck & Hölzel), all leg. H., U., C. Aspöck, H. Hölzel, M. W. Mansell.

Brinckochrysa plagata (Navás), Figs 8–13

Chrysopa plagata Navás, 1929: 362.

Brinckochrysa plagata (Navás); Ohm & Hölzel, 1982: 160.

This species was described from Boa Vista in the Cape Verde Archipelago. In recent years, additional material has been collected from all the other islands in the archipelago (Ohm & Hölzel 1982, and unpublished records). To facilitate comparison, *B. plagata* is redescribed and the male and female genitalia are illustrated for the first time.

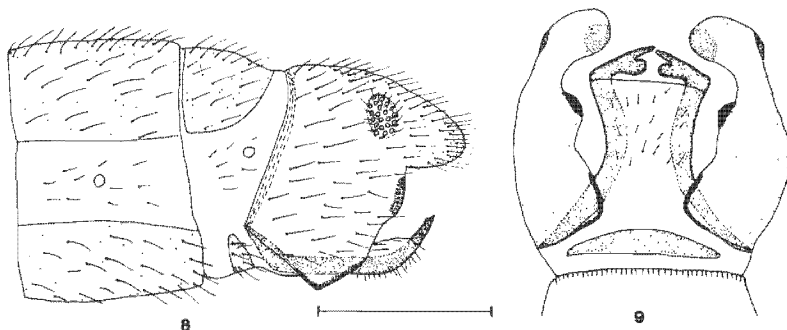
Size: length of forewings, male 9–10 mm, female 10–12 mm; hindwings male 8–9 mm, female 9–11 mm.

Head yellow with red spots on clypeus and below antennae; raised portion of vertex green with red patches near anterior margin; upper parts of toruli red and red lines along the inner eye-margin. Palpi brownish. Antennae distinctly longer than wings; scape longer than wide, yellow with a red stripe on outer surface and red spots above; pedicel short with more or less distinct red ring; flagellum yellow, apical parts brownish; setae yellowish-brown.

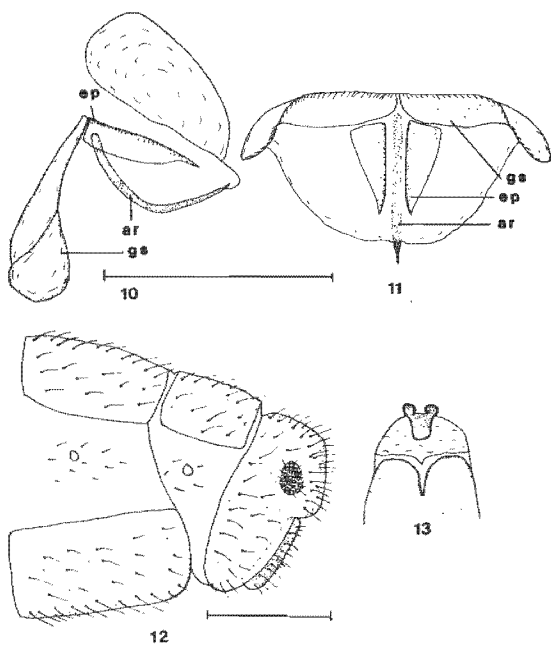
Thorax green with red marks dorsally: pronotum sometimes with small dots and lines; mesonotum with a large median patch, metanotum with a smaller patch. Wings: membrane hyaline, venation green, partly infuscated in forewings: some costal crossveins dark at subcosta; base of radial sector and some basal radial crossveins, the anal veins and a few inner gradates darkened; number of gradates variable, usually 3–5 in forewings and 2–4 in hindwings. Legs green with pale-brown hairs; tarsal claws strongly curved, with basal tooth.

Abdomen green, tergites with red bands along posterior margins; apex of

male abdomen as in Figs 8 & 9, genital structures as in Figs 10 & 11; female subgenital as in Fig. 13.



Figs 8-9 *Brinckochrysa plagata* (Navás), Cape Verde Isl., Sal. 8. Apex of ♂ abdomen, lateral. 9. Same, ventral.



Figs 10-13 *Brinckochrysa plagata* (Navás). 10. Gonarcus with arcessus and entoprocessus, lateral. 11. Same, caudal. 12. Apex of abdomen (♀), lateral. 13. Same, ventral with subgenital.

MATERIAL EXAMINED. CAPE VERDE ARCHIPELAGO: 28 specimens: Santo Antão, Porto Novo, 24.xi.1980; São Vicente, nr Mindelo, 26.xi.1980; Sal, Terra Boa, 5.xi.1980, H. Hölzel & P. Ohm.

Brinckochrysa stenoptera (Navás), **comb. nov.**

Chrysopa stenoptera Navás, 1910: 46.

Chrysopa mozambica Navás, 1931: 105 **syn. nov.**

Chrysopa (*Brinckochrysa*) *stenoptera* (Navás); Tjeder, 1966: 368.

Brinckochrysa sigwalti Séméria, 1984: 221. **syn. nov.**

Tjeder (1966) redescribed *Chrysopa stenoptera* and published excellent figures of the male and female genitalia. He recorded the species from South West Africa, South Africa (Cape Province, Natal, Transvaal), Zimbabwe and Mocambique. I have examined the holotypes of *Chrysopa mozambica* Navás from Mocambique and *Brinckochrysa sigwalti* Séméria from Senegal. The genital structures agree very well with the figures given by Tjeder. Moreover, I have also compared them with material recently collected in the Transvaal. Consequently, *C. mozambica* and *B. sigwalti* are relegated to synonymy with *C. stenoptera* Navás (1910) which accordingly has to be transferred to *Brinckochrysa* Tjeder (1966).

It remains to be mentioned, that *Brinckochrysa nachoi* Monserrat from Spain is very closely related to *B. stenoptera*, and the two are practically indistinguishable on morphological characters.

Distribution: South West Africa, South Africa, Zimbabwe, Mocambique, Nigeria, Gambia, and Senegal.

MATERIAL EXAMINED. MOCAMBIQUE: holotype ♂, *Chrysopa mozambica* Navás, Env de Vila Pery, Reg du Mt Malenge (Vandouzi) P. Lesne, 1928 (Museum Nationale d'Histoire Naturelle, Paris). SENEGAL: holotype ♂, *Brinckochrysa sigwalti* Séméria, Kedougou, 3–31.x.1980, Sigwalt (Museum Nationale d'Histoire Naturelle, Paris). GAMBIA: 1 ♂, 2 ♀, Tendaba Camp, Südufer Gambia, 20–22.xi.1981, H. Hölzel & P. Ohm (Coll. Hölzel). NIGERIA: 2 ♂, 4 ♀, Iita Ibadan, 24.iii.1982, P. Duelli (Coll. Hölzel). SOUTH AFRICA: 25 ♂ & ♀: Transvaal; Nylsvley Nature Reserve, 24.39 S 28.42 E, 1200 m, 5–6.ii. & 1.iii.1985; Messina Nature Reserve, 22.23 S 30.02 E, 700 m, 11–12.ii.1985; Mogol Nature Reserve, 23.58 S 27.45 E, 900–1100 m, 15–16.ii.1985; Rustenburg Nature Reserve, 25.40 S 27.12 E, 950 m, 17–19.ii.1985, all leg. H., U., C. Aspöck, H. Hölzel, M. W. Mansell (Coll. Aspöck & Hölzel).

Brinckochrysa turkanensis (Navás), **comb. nov.**

Chrysopa turkanensis Navás, 1936: 115.

Chrysopa (*Brinckochrysa*) *peri* Tjeder, 1966: 361. **syn. nov.**

Navás (1936) based the description on a single male which I have examined. It agrees in all respects with the description and drawings of genital structures of *Chrysopa peri* Tjeder, from South West Africa. I have also compared it with material recently collected in the Transvaal. Consequently, *C. peri* is relegated to synonymy with *C. turkanensis*, which accordingly has to be transferred to *Brinckochrysa* Tjeder.

Brinckochrysa turkanensis bears considerable resemblance to *B. alferii* (Navás, 1926), recorded from northern Sudan, Egypt, Tunisia, Algeria and Saudi Arabia (Hölzel 1980). The genital structures are very similar and the two species seem closely related.

Distribution. This species has been recorded from South West Africa, South Africa (northern Cape Province, Transvaal) and Kenya.

MATERIAL EXAMINED. KENYA: holotype ♂, *Chrysopa turkanensis* Navás, Lokitang, Turkana nord, st 24, 750 m (Museum National d'Histoire Naturelle, Paris). SOUTH AFRICA: Transvaal; 1 ♀, Hans Merensky Nature Reserve, 23.40 S 30.39 E, 700 m, 8.ii.1985; 1 ♂, Messina Nature Reserve, 22.23 S 30.02 E, 700 m, 11–12.ii.1985; 1 ♂, Mogol Nature Reserve, 23.58 S 27.45 E, 900–1100 m, 15–16.ii.1985; 1 ♀, Rustenburg Nature Reserve, 25.40 S 27.12 E, 950 m, 17–19.ii.1985; all leg. H., U., C. Aspöck, H. Hölzel, M. W. Mansell (Coll. Aspöck & Hölzel).

***Brinckochrysa pulchella* sp. nov., Figs 14–18**

Size: length of forewings; male 8 mm.

Head yellow with a reddish stripe across face below antennae, a red spot on genae and red stripes along inner eye-margins. Antennae distinctly longer than wings; scape longer than wide, yellow with a red stripe on outer surface; flagellum yellow basally, dark brown apically; setae brown.

Thorax yellow, dorsum with reddish-brown lateral bands and rather long pale hairs. Wings: membrane hyaline without spots or shading: venation pale with small dark dots on radial sector, median vein, cubitus, the anal veins and on all crossveins; apex of intramedian cell beyond radio-medial crossveins; forewings with 3 gradates in inner row, 3–5 in outer row; hindwings with 1 or 2 in inner row, and 3–5 in outer row. Hairs on veins and marginal fringes brown. Legs yellow with pale-brown hairs; claws without basal tooth (Fig. 18).

Abdomen yellow with pale hairs; tergites with reddish-brown lateral bands; apex as in Figs 14 & 15; genital structures as in Figs 16 & 17. Female unknown.

Brinckochrysa pulchella superficially resembles *B. turkanensis* but can be distinguished from this, and all other African species of the genus by the shape of the tarsal claws (claws of *B. stenoptera*, *B. michaelsoni*, and *B. tjederi* with a basal tooth, claws of *B. turkanensis* without basal tooth but with rounded basal dilation).

MATERIAL EXAMINED. SOUTH AFRICA: Transvaal; holotype ♂, Kruger National Park, Punda Maria, 22.41 S 31.02 E, 600 m, 28.ii.1985 (National Collection of Insects, Pretoria); 3 ♂ paratypes, Rustenburg Nature Reserve, 25.40 S 27.12 E, 950 m, 17–19.ii.1985 (Coll. Aspöck & Hölzel), all leg. H., U., C. Aspöck, H. Hölzel, M. W. Mansell.

DISCUSSION

The genus *Brinckochrysa* now comprises seven African species: *B. stenoptera* (Navás, 1910), *B. alferii* (Navás, 1926), *B. michaelsoni* (Esben-Petersen, 1928), *B. plagata* (Navás, 1929), *B. turkanensis* (Navás, 1936), *B. tjederi* sp. nov. and *B. pulchella* sp. nov. It seems remarkable that some of the South African species are closely related to north African or southern European taxa; *B. turkanensis* is close to *B. alferii*, *B. stenoptera* to *B. nachoi* and *B. tjederi* to *B. plagata*. On the other hand, the South African *B. michaelsoni* seems to be distributed all over Africa, parts of the Arabian Peninsula, Turkey (Anatolia) and Greece (Hölzel 1980).

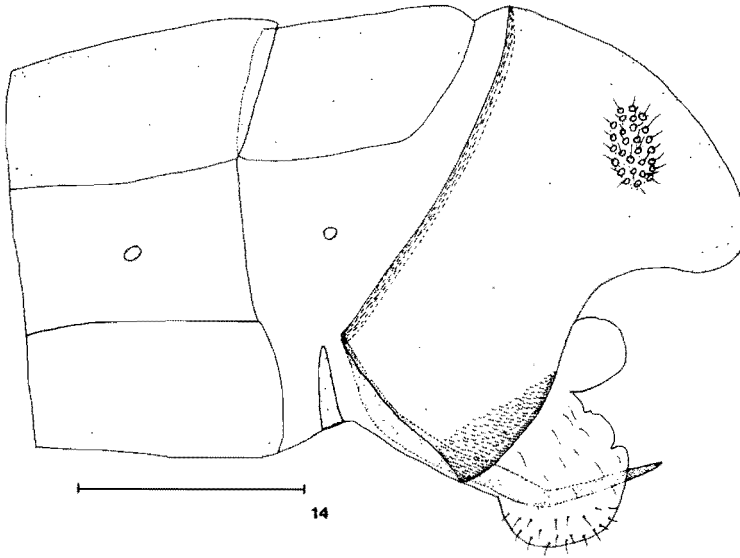
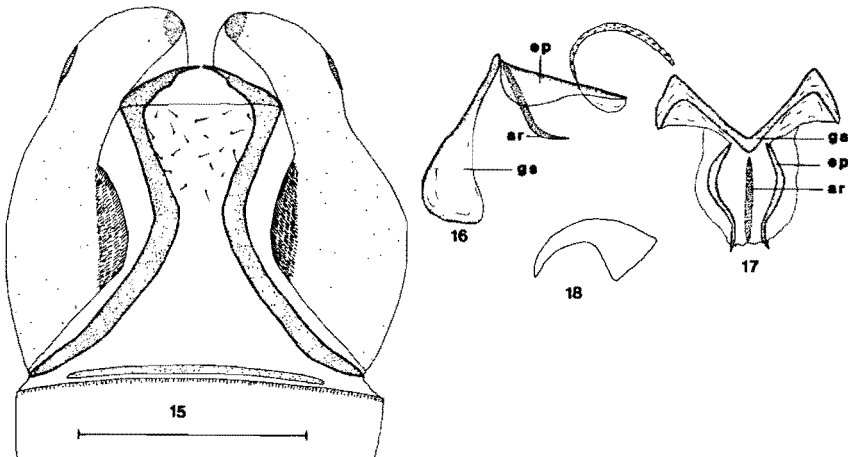


Fig. 14 *Brinckochrysa pulchella*, **sp. nov.** (holotype ♂), apex of abdomen, lateral.



Figs 15–18 *Brinckochrysa pulchella* (holotype ♂). 15. Apex of abdomen, ventral. 16. Gonarcus with arcessus and entoprocessus, lateral. 17. Same, caudal. 18. Tarsal claw.

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REFERENCES

- ESBEN-PETERSEN, P. 1928. Neuroptera, Planipennia. In: *Beiträge zur Kenntnis der Land- und Süßwasserfauna Deutsch Südwestafrikas*. Ed. W. Michaelsen. 2: 206–221. L. Friederichsen & Co. Hamburg.
- HÖLZEL, H. 1980. Insects of Saudi Arabia. Neuroptera: Fam. Chrysopidae. In: *Fauna of Saudi Arabia*. Ed. W. Wittmer. 2: 164–173. Basel.
- NAVÁS, L. 1910. Crisopidos nuevos. *Broteria* 9: 38–59.
- 1926. Névroptères d'Égypte et de Palestine. *Bulletin de la Société Royale Entomologique d'Égypte* 19: 192–216.
- 1929. Insectos exóticos Neuropteros y afines del Museo Civico de Génova. *Annali del Museo Civico di Storia Naturale Giacomo Doria* 53: 354–389.
- 1931. Insectos del Museo de Paris VII. *Broteria* 27: 101–113.
- 1936. Neuroptera, Embioptera, Plecoptera, Ephemeroptera et Trichoptera. In: Mission scientifique de l'Omo III. 19. *Mémoires du Muséum d'Histoire Naturelle* n. ser 4: 101–128.
- OHM, P & H. HÖLZEL. 1982. Tiergeographische und ökologische Aspekte der Neuropterenfauna der Kapverden. *Courier Forschungsinstitut Senckenberg* 52: 159–165.
- SÉMÉRIA, Y. 1984. Chrysopides du M.N.H.N. a Paris. Espèces du Sénégal: 1. (Neuroptera). *Revue française d'Entomologie (N.S.)* 6 (1): 21–23.
- TJEDER, B. 1966. Neuroptera-Planipennia. The Lace-wings of Southern Africa. 5. Family Chrysopidae. *South African Animal Life* 12: 228–534.

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